

# TECHNICAL NOTES

U S Department of Agriculture

Soil Conservation Service

TN - PLANT MATERIALS - 37

May 1994

## SEEDING RATES AND GERMINATION OF SELECTED SPECIES

The following plant germination data comes from a study conducted at the SCS, Lockeford Plant Materials Center for the California Department of Transportation. The goals of the study were to determine the effectiveness of selected species to reduce erosion and to determine their rate of germination. The data being presented are the results for the rate of germination over the first 60 days of the study. This information may be used with due consideration being given to the seeding rate, soil characteristics, and the methods of the study.

SPECIES	SEEDS PER POUND	SEEDING RATE LBS PER ACRE	SEEDS PER SQ. FT.	PLANTS PER SQ. FT. & HEIGHT 30 DAYS	PLANTS PER SQ. FT. & HEIGHT 60 DAYS
'Hykon' Rose clover	164,448	18	68	19 Cotyledon	24: 1.25 cm
Strawberry clover	288,000	18	119	15 Cotyledon	13 : Cotyledon
Subclover	54,000	24	30	5 Cotyledon	14: 1.2 cm
'Blando' brome	251,840	18	104	19 :1.5 cm	28 :3.0 cm
'Zorro' annual fescue	857,000	12	236	64: 1.4 cm	106 : 3.5 cm
'Regreen'	12,000	40	11	6: 2.5 cm	9 :7.5 cm
Barley	13,600	125	39	25 :7.5 cm	20: 14 cm
Annual ryegrass	186,000	27	115	39 : 2.0 cm	73 : 6.0 cm
'Berber' Orchardgrass	477,200	24	263	188: 1.5 cm	247 :3.0 cm
Purple stipa	117,000	20	54	1 :2.0 cm	8 :4.0 cm
Blue wildrye	135,300	15	47	37 :2.5 cm	50 :4.0 cm
'Cucamonga' brome	136,000	20	62	23 :4.5 cm	29 :10 cm
'Luna'pubesent wheatgrass	87,120	36	72	3 :2.0 cm	17 :4.0 cm
'Covar' sheep fescue	530,320	15	183	51 :1.5 cm	68 :2.5 cm
Pine bluegrass	1,046,000	10	689	132 :1.5 cm	120 :3.0 cm
'Molate' red fescue	365,120	15	126	26 :1.5 cm	59 :5.0 cm
California barley	100,000	20	46	23 :3.0 cm	24 :4.5 cm
'Scaldis' hard fescue	598,920	15	204	3 :2.5 cm	4 :4.0 cm
California fescue	200,000	20	92	6 :3.0 cm	28 :5.5 cm
Squirreltail	64,000	20	29	9 :2.5 cm	10 :5.0 cm
Idaho fescue	450,000	15	155	44 :1.5 cm	40 :3.0 cm
California brome	136,000	15	62	39 :2.5 cm	45 :7.0 cm

METHOD: Each species was planted in a box 2'x6'x7" deep on December 3, 1993 and elevated to a 2:1 slope on January 31, 1994. Seed was planted by hand and covered with soil to an average depth of 1/2 inch. Initially, rodents severely grazed the clovers and subclover.

SEEDING RATE: Seeding rates were based on 80 percent viable seed per pound. All seed used met or exceeded this standard.

SOIL: The soil was a fine sandy loam. The soil pH was 4.9 and the EC was 3.2. The nitrogen level was very high, Phosphorous level was high, and the potassium level was low.

Prepared by Gene Bishop, Assistant Manager, Lockeford Plant Materials Center, Soil Conservation Service, Lockeford, California.

### List of Plant Species

This list has been organized in the same order as the table on page 1.

- |                                    |                                      |
|------------------------------------|--------------------------------------|
| 1. 'Hykon' Rose clover             | <i>Trifolium hirtum</i>              |
| 2. Strawberry clover               | <i>Trifolium fragiferum</i>          |
| 3. Subclover                       | <i>Trifolium subterraneum</i>        |
| 4. 'Blando'brome                   | <i>Bromus, hordeaceus hordeaceus</i> |
| 5. 'Zorro' annual fescue           | <i>Vulpia myuros</i>                 |
| 6. 'Regreen'                       | <i>Elytrigia x Triticum</i>          |
| 7. Barley                          | <i>Hordeum vulgare</i>               |
| 8. 'Wm~m6ra 62"<br>annual ryegrass | <i>Lolium rigidum</i>                |
| 9. 'Berber' Orchardgrass           | <i>Dactylis glomerata</i>            |
| 10. Purple stipa                   | <i>Stipa, pectinatus</i>             |
| 11. Blue wildrye                   | <i>Elymus, glaucus</i>               |
| 12. 'Cucamonga' brome              | <i>Bromus, carinatus</i>             |
| 13. 'Luna' pubescent<br>wheatgrass | <i>Elytrigia, intemmedia</i>         |
| 14. 'Covar' sheep fescue           | <i>Festuca trachyphylla</i>          |
| 15. Pine bluegrass                 | <i>Poa, scabrella</i>                |
| 16. 'Molate' red fescue            | <i>Festuca, rubra</i>                |
| 17. California barley              | <i>Hordeum, californicum</i>         |
| 18. 'Scaldis' hard fescue          | <i>Festuca, trachyphylla</i>         |
| 19. California fescue              | <i>Festuca, californica</i>          |
| 20. Squirreltail                   | <i>Sitanion, jubatum</i>             |
| 21. Idaho fescue                   | <i>Festuca, idahoensis</i>           |
| 22. California brome               | <i>Bromus, carinatus</i>             |

Seed per sq. ft. =  $\frac{\text{seed Der lb x planting rate in lbs/acre}}{43,560 \text{ sq. ft. per acre}}$

Example: Rose clover  $\frac{164,448 \times 18}{43560} = 68$  seed per sq. ft.

References used to determine seed T)er vound:

Rules for Testing Seed, Association of Official Seed Analysts, Journal of Seed Technology, Volume 6, Number 2, 1986.

Seed Testing Regulations, U. S. Dept. of Agriculture, Agriculture Marketing Services, Part 201 Federal Seed Act Regulations. August 1975.

Mirov, N.T. and J.K. Kraebel, May 1939, Collecting -and Handling Seeds of Wild Plants, U S Dept. of Agriculture, U. S. Forest Service Publication No. 5.

Schwendiman, John L. and-R.F. Sackman, June 1940, Processing Seed of Grasses and Other Plants to Remove Awns and Appendages U. S. Dept. of Agriculture, Circular No . 558

Standard Rates for Conservation Seedings and Plantings in California, February 1975, Soil Conservation Service.U. S. Dept. of Agriculture, Technical Notes, TN - Plant Materials 5.